

# Peddling the Penguin: Linux Gaming



A Presentation for GDC 2004  
By Frank Earl, Team Lead,  
Linux Game Publishing



# *Introduction*

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Current Projects: Ballistics (x86-32, x86-64, PPC),  
SoulRide (x86-64), Disciples 2 (x86-32, x86-64, PPC)

Non Game-Credits: Passkey Parking and GTMS for DFW  
International Airport (NT and Linux), epicRealm XTS  
Caching system, CoolLogic Utility and Security Monitoring  
System

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# *Linux: A choice for Gaming?*

- Good support for the top of the line display adapters and sound cards- some more obscure cards are also supported. It also supports many different input devices.
  - Currently the number 2 desktop OS, according to IDC's latest reports.
  - Already supports x86 64-bit operation on AMD (Athlon 64 and Opteron) and Intel (Nocona, Potomac, and Prescott) processors supporting the extended architecture. There is also 64-bit support for the PowerPC G5 line.
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# *Current Hardware Support*

- NVidia, ATI, and Matrox currently provide binary only OpenGL drivers for x86-32 systems. Several other vendors have recently done the same.
  - NVidia currently provides binary only OpenGL drivers for x86-64 systems.
  - Legacy 3D cards and some of ATI's current lower end offerings have varying levels of support through the DRI project. This support is available under pretty much any architecture that supports AGP or PCI.
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# *Current Hardware Support (Cont'd)*

- Most AC'97 and USB based sound devices are supported- this includes offerings from Creative, Trident, VIA, and Ess.
  - Pretty much all old-style analog joysticks are supported as are many of the HID based USB joysticks and other input devices.
  - This support is largely transparent and plug-and-play under most distributions that are purchased off the shelf.
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# *Linux Market Share*

- According to IDC's latest report, the worldwide market share for Linux on the desktop is approximately 3% (Mac OS, the now number three OS, has 1.8%...) with an expected growth in the next 2 or so years to 6%.
  - Siemens has made statements to the effect that they foresee the Linux desktop market share to be somewhere around 20% by 2007.
  - Market segments in Asia and Europe seem to be slightly ahead of the US at this point in time for adoption rates.
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# *20 percent? Are they serious?*

## *Maybe.*

- Part of the problem with IDC's numbers in their report is that they are a metric of the *shipped* units of a given operating system for that year.
  - Un-installed units and freely obtained units do not count into those figures- either situation will skew the numbers.
  - Because of the aforementioned, it's a little difficult to peg down an exact figure for Linux market share since anyone can legitimately give out copies of most of what is in a distribution.
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# If that's the case, how come past attempts were lackluster?

- Because the past attempts were made to an infant market segment- the very first adopters of Linux for Desktop and Gaming use.
- Many of the businesses made some bad missteps in their business execution.
- The retail channel didn't help out much- very few titles were in brick and mortar stores. They didn't know how to sell it.





# *Options for Studios and Publishers*

- Develop a Linux standalone server for multi player play.
  - Produce a Windows version and then work with Transgaming to get WineX to work with your game.
  - Build a Windows version and go back after it ships and produce a Linux version after the fact.
  - Make your game largely cross-platform from the start and either include it with the Windows version or release it separately
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# *Standalone Game Servers*

- Several studios have pursued this option in the past- mostly titles from several years back.
  - Many titles that provide a game network actually provide this without disclosure that the servers are Linux based.
  - Linux provides a stable platform for the game server- one that is generally sought after and typically used by game hosting networks.
  - Unfortunately, this option doesn't provide game clients except through Windows- something that hasn't been well received over time by the current Linux user community.
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## ▪ *Relying on WineX*

- Several studios have produced titles with this option.
  - It isn't a complete and stable solution- many games don't work completely at the moment. It requires at least some work on TransGaming's part to ensure your game works (and doesn't break others...).
  - Presents quite a bit of indirection- a machine needs to be pretty robust to provide better than mediocre results.
  - It's not really a native solution and therefore receives less than favorable reception from many in the market segment.
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# *Porting Titles*

- Many of the titles available or in progress for Linux currently are provided in this manner.
  - Often requires skills in both Windows and Linux development because of the need to translate non-portable code over to portable or Linux specific code.
  - Several companies exist to do the work- either for themselves, on behalf of the studio or publisher, or to provide technical assistance and manpower.
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## *Porting Titles (Cont'd)*

- The process often produces cleaner, more stable binaries.
  - Another side effect of the effort, if done carefully, is that you end up with a MacOS X port (An example of this would be SoulRide...)
  - This work produces native binaries, which is generally appreciated by the market segment in question and is purchased accordingly.
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# *Producing a Cross-Platform Title*

- Some of the major studios have produced titles this way. It is probably the ideal way of producing titles.
  - Some of the titles that have been produced in the past include: Quake 3: Arena, Unreal Tournament 2003 and 2004, Savage, America's Army, and NeverWinter Nights.
  - Providing a cross-platform version of the title requires slightly more work than a Windows-only title.
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# *Cross-platform Titles*

## *(Cont'd)*

- Developers have to generally avoid using platform specific calls within game code.
  - Care must be exercised in the choices of middleware for a title- not all solutions for cut-scenes, networking, etc. are available for Linux, causing incompatibilities or missing features.
  - There are several cross-platform solutions already available for most of the middleware and source code is available for many more of them to allow you to provide a Linux version of the same.
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# *Cross-platform Titles*

## *(Cont'd)*

- Allows a studio or publisher to target nearly 100% of the potential desktop market.
  - Another benefit is that code tends to be much more stable out of the gate for all platforms. More effort and thought is applied to the overall design, because it has to be cross-platform in nature.
  - This produces a native solution- it's really received well by the market segment, especially if the title is shipped out so that it can be bought in the retail channel.
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# *Available Tools*

Simple Directmedia Layer (<http://www.libsdl.org>)- Input (keyboard, analog joystick/HID, etc), basic sound, 2D frame buffer, and seamless OpenGL access. Used by most Linux games.

OpenAL (<http://www.openal.org>) - Advanced and positional audio playback. Used by most Linux games and games like Unreal Tournament 2003/2004.

OpenPlay (<http://sourceforge.net/projects/openplay>)- Network abstraction layer designed with game development in mind. Originally developed by Apple for MacOS.

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# Linux Game Publishing Releases

- Mindrover
- Creatures Internet Edition
- Majesty Gold Edition
- NingPo Mahjong
- Candy Cruncher



# LGP Titles in Progress

- Ballistics
- Bandits: Phoenix Rising
- Disciples 2
- SoulRide
- Hyperspace Delivery Boy
- Knights and Merchants
- Software Tycoon
- Northland
- Gorky 17



# *LGP Info*

- Website at <http://www.linuxgamepublishing.com>
  - In negotiations for several more new titles in various genres, including real-time strategy, simulation, and first/third person combat games.
  - Working on improving the tools available for producing ports and cross-platform titles.
  - Interested in working with studios and publishers to help them produce titles for the growing Linux market.
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# In Closing...

